Exhibit B

TRANSPORT PHENOMENA

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Preface

This book is intended to
phenomena for students of
present the subjects of m
transport (heat conduction,
port (diffusion). In this t
phenomena are occurring a
said about the molecular
continuum approach is of
dents, although it should be
for complete mastery of th

Because of the current de
emphasis on understanding
use of empiricism, we feel t
kind. Obviously the subj
across traditional departme
subject of transport phenom
mechanics, and electromag
ences." Knowledge of the
transport has certainly bec
gineering analysis. In add
interest to some who are
meteorology, and biology.

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L CONDUCTIVITY OF SOME
:RIC PRESSURE[a]

ure)	Thermal Conductivity k (cal sec^{-1} cm^{-1} $(° K)^{-1}$)
	0.000378
	0.000363
	0.000247
	0.000328
	0.000400
	0.000703
	0.00143
	0.00156
	0.00160

ıysics, Thirty-ninth Edition, Chemical
7), pp. 2257–2259. Corrected data for
ıhers.

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MAL CONDUCTIVITIES OF
;PHERIC PRESSURE[a]

e	Thermal Conductivity k (cal sec^{-1} cm^{-1} $(° K)^{-1}$)
	0.247
	0.290
	0.106
	0.119
	0.039
	0.037
	0.036
	0.0196
	0.0261
	0.0303
	0.1073
	0.0956
	0.0846
	0.2055
	0.1809
	0.1596
	0.0617
	0.0648
	0.0675

Vol. 2, Atomic Energy Commission,
fice, Washington, D.C. (May, 1955),

TABLE 8.1–4

EXPERIMENTAL VALUES OF THERMAL CONDUCTIVITIES OF SOME SOLIDS[a]

Substance	Temperature T (° C)	Thermal Conductivity k (cal sec^{-1} cm^{-1} $(° K)^{-1}$)
Aluminum	100	0.492
	300	0.64
	600	1.01
Cadmium	0	0.220
	100	0.216
Copper	18	0.918
	100	0.908
Steel	18	0.112
	100	0.107
Tin	0	0.1528
	100	0.143
Brick (common red)	—	0.0015
Concrete (stone)	—	0.0022
Earth's crust (av.)	—	0.004
Glass (soda)	200	0.0017
Graphite	—	0.012
Sand (dry)	—	0.00093
Wood (fir)		
parallel to axis	—	0.00030
perpendicular to axis	—	0.00009

[a] Data taken from the *Reactor Handbook*, Vol. 2, Atomic Energy Commission, AECD–3646, U.S. Government Printing Office, Washington, D.C. (May, 1955), pp. 1766 *et seq*.

Substitution in Eq. 8.1–1 then gives

$$k = \frac{QY}{A\,\Delta T} = \frac{0.717 \times 0.640}{929 \times 2.00}\,\frac{(\text{cal sec}^{-1})(\text{cm})}{(\text{cm}^2)(°\,\text{K})}$$
$$= 2.47 \times 10^{-4}\ \text{cal sec}^{-1}\ \text{cm}^{-1}\ (°\,\text{K})^{-1}$$

For ΔT as small as this, it is usually reasonable to assume that the value of k applies at the average temperature $(T_1 + T_0)/2$, which in this case is 25° C. See Problems 9.F and 9.J for methods of allowing for variation of k with T.

§8.2 TEMPERATURE AND PRESSURE DEPENDENCE OF THERMAL CONDUCTIVITY IN GASES AND LIQUIDS

The scarcity of reliable thermal conductivity data for fluids frequently makes it necessary to estimate k from other data on the given substance. We present here two correlations to aid in such estimation and to illustrate how